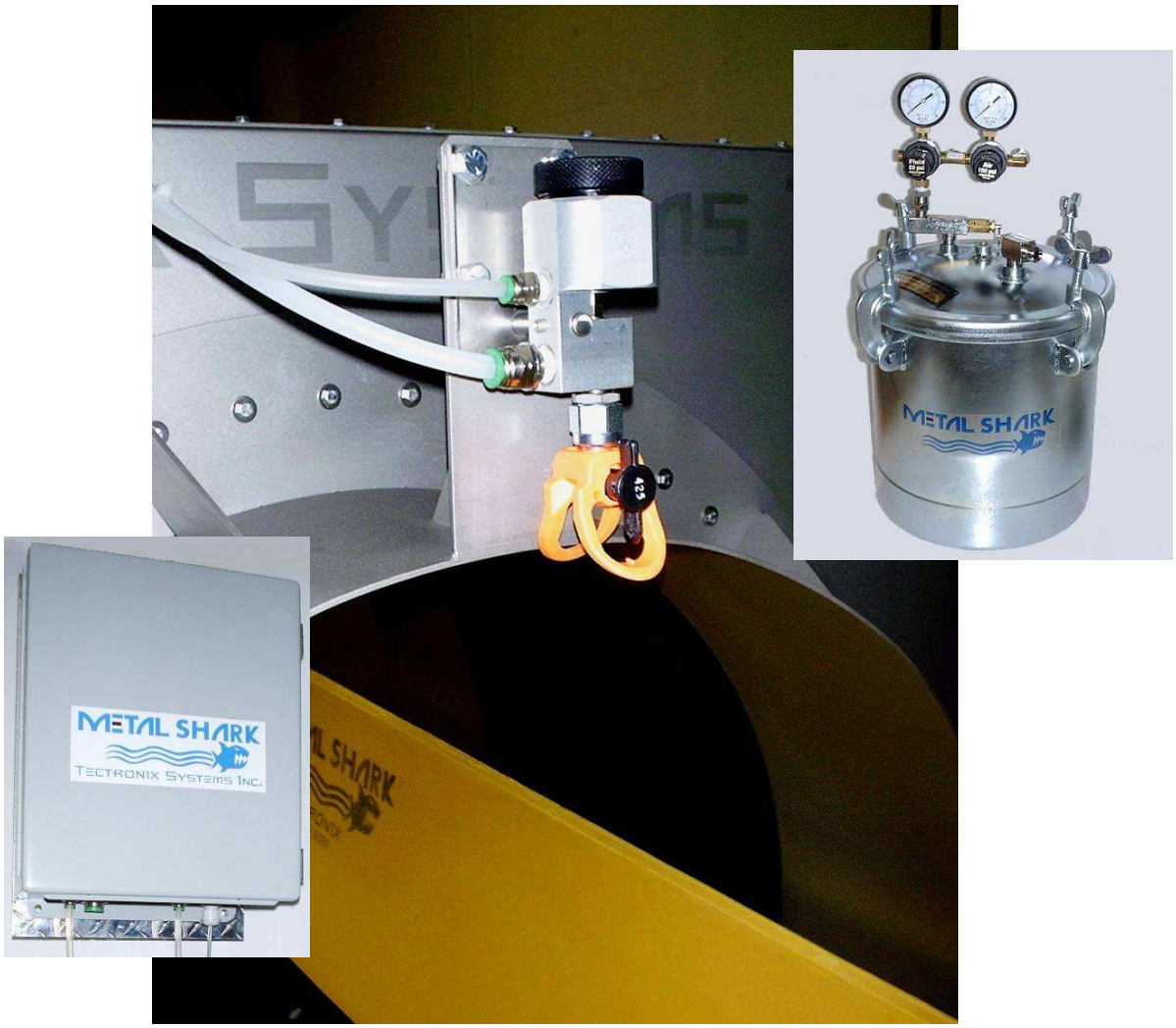
TECTRONIX SYSTEMS INC.
Unit 9, 18812 - 96th Avenue, Surrey, BC Canada V4N 3R1

Marking System Operators' Manual



MARKING SYSTEM

User manual (English)

Project:

Project name

Order / Project NO.

We would like to take this opportunity to thank you for purchasing your Marking System from Tectronix Systems Inc. The confidence you have placed in our product is sincerely appreciated and we will endeavour to provide the best service possible.

Please take the time to read this User Manual completely as this provides you with the expertise necessary to install and adjust the system according to your requirements. In addition to this, you will learn about the sophisticated options provided by our electronics.

If, contrary to expectations, you have any problems in the set up and operation of your system, the Tectronix team is available to assist you.

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1 Introduction

Your marking system has been engineered to the highest industrial specifications to ensure long life and trouble free operation.

Features

- Easy installation
- Stainless steel has been used throughout to ensure wear resistance.
- An air filter has been incorporated to provide clean air to the spray gun actuator.
- Automatic purge valve on the filter provides maintenance free operation.
- Heavy duty industrial air valve
- Nylon airlines provide high abrasion and environmental resistance.
- Push in fittings for air lines and dye lines allow quick and trouble free servicing.
- Adjusting marking system location on material accomplished with very accurate software within the Metal Shark™ controller.
- Easy cleaning and unclogging of spray nozzle
- Easy adjustment of dye density per actuation
- A heat belt is available for Pressure Pots when used in cold locations that are subjected to temperatures below 35℉/2℃.
- Available with a 24VDC or 110VAC actuation solenoid.
- 24VDC power supply option

2 Getting started

2.1 Safety:

This marking system is under air pressure and appropriate precautions must be followed in order to ensure a safe working environment.

- This automatic spray gun system should be operated only by an adequately trained operator. Any misuse or handling other than those indicated in this instruction manual is not covered by guarantee or warranty.
- Tectronix Systems Inc disclaims all responsibility for any accident or damage caused by failure to observe correct operational and safety procedures as indicated in this manual.
- Fluid and solvents can be highly flammable or combustible
- Use in well ventilated area
- Avoid any ignition sources such as smoking, open flames, electrical hazard, etc.
- Never point gun in the direction of the human body or place any part of the human body in front of the gun.
- Never exceed the maximum safe working pressure of the equipment
- Always release air and fluid pressure before cleaning, disassembling or servicing.
- Never modify any part of this system unless authorized to do so in writing by Tectronix Systems Inc.

2.2 Step by step installation:

- Mount gun on metal detector with parts provided (See diagram). Make sure it is firmly fixed and will not move.

- Assemble the pressure pot as per the following instructions.

SETTING UP OF UNIT - 2.25 GALLON PRESSURE POT

ASSEMBLY:

1. Assemble the regulator to the paint tank lid as shown in the exploded view drawing.

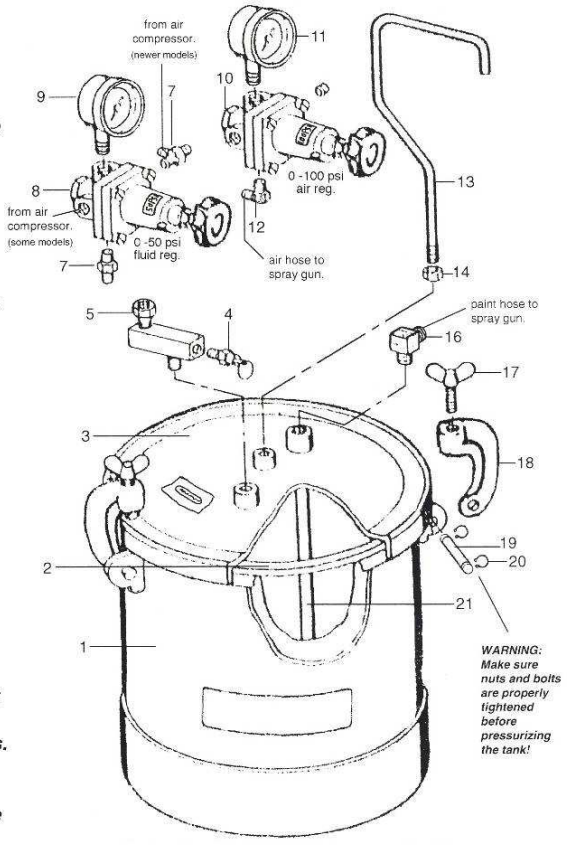
NOTE: This regulator is a special pressure limiting regulator. Your paint tank should be used only with this regulator. NEVER ASSEMBLE A REGULATOR TO YOUR PAINT TANK IN ANY OTHER MANNER.

2. Install the handle (13) in the threaded hole in the center of the tank lid (3) as shown.
3. Attach the material hose to the material hose connector (15).
4. Connect the material hose and the air hose to the spray gun and check all fittings to make sure they are tight.
5. Turn both regulators to minimum pressure (counterclockwise) and connect air supply. Slowly increase fluid pressure while watching for any leaks.
6. Read page 8 "operating instructions" for correct pressure settings.

CAUTION: Do not use wrench or pliers to tighten knobs. Hand tighten only.

CAUTION: Make certain that all pressures within the system are relieved before attempting to remove any component or part of a component.

WARNING: Failure to follow instructions on proper assembly and use of a paint tank may possibly result in damage to property or personal injury. This unit must be assembled as indicated in these instructions. Only those parts supplied with this unit should be used. These parts are safety performance engineered. Any substitutions may be counter-protective and dangerous.

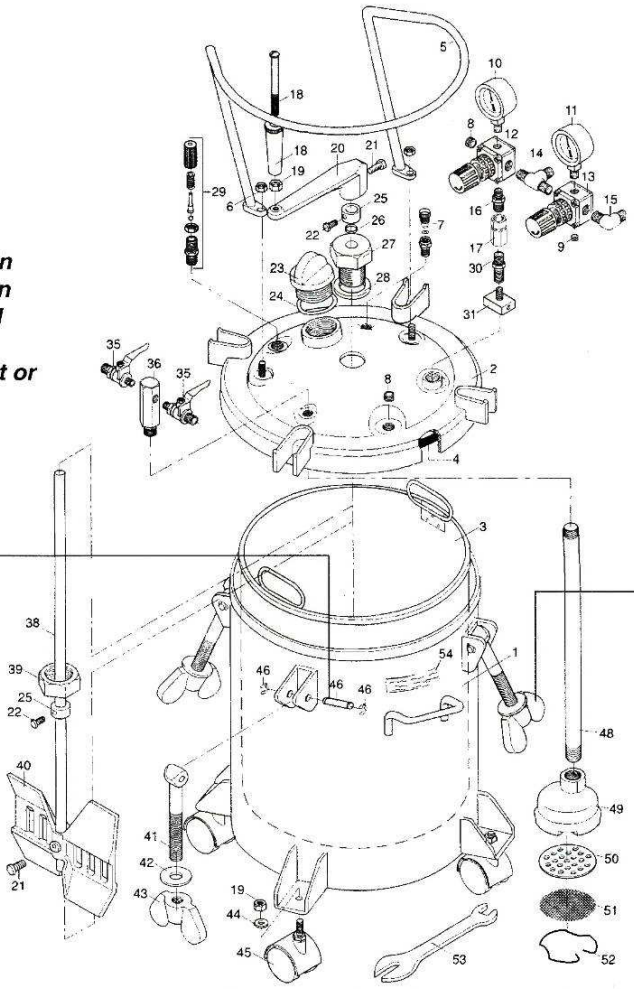


5 G PRESSURE POT W/MANUAL AGI PARTS LIST & DIAGRAM

Warning: ***Never allow pressure in pot to exceed 50 lbs.***

CAUTION: ***Make certain that all pressures within the system are relieved before attempting to remove any component or part of a component.***

WARNING: ***Make sure pins are properly fastened before pressurizing the tank!***



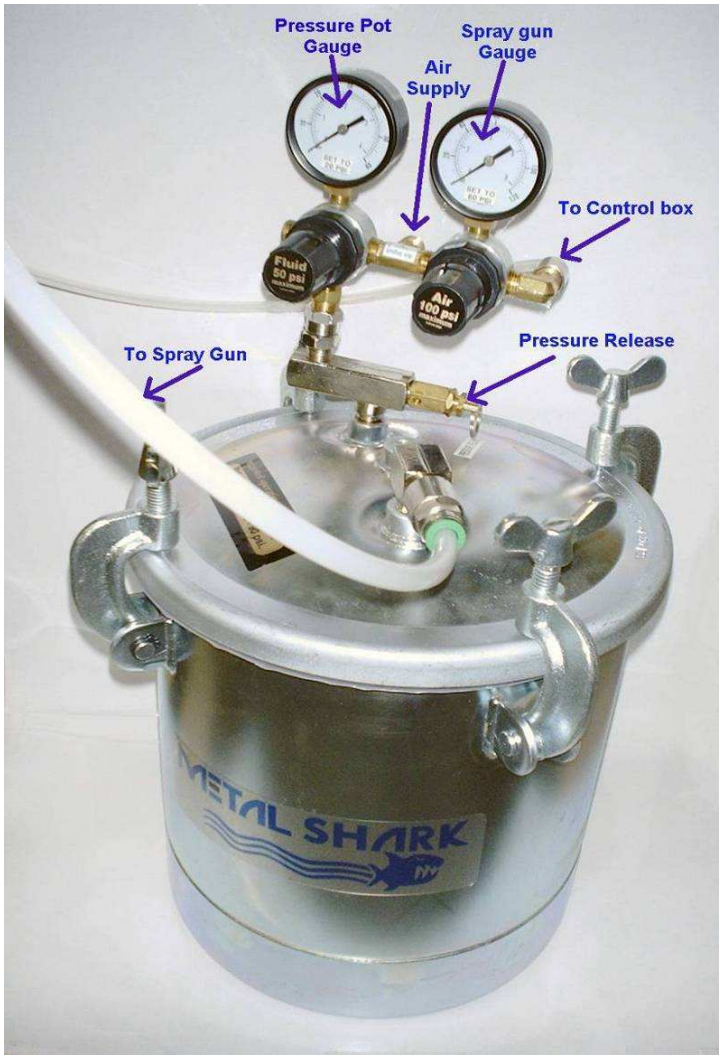
CAUTION: ***Do not use wrench or pliers to tighten knobs. Hand tighten only.***

Pos.	Description	Qty.
	Pressure pot with manual agitator, 5 gal.	
1	Tank	1
2	Lid assembly	1
3	Stainless steel inner tank	1
4	Cover gasket	1
5	Carrying handle	1
6	Nut	2
7	Bleeder valve ass'y	1
8	Plug, 1/4"	2
9	Plug, 1/8"	1
10	Air guage, 0-60 psi, 1/8" bottom	1
11	Air guage, 0-160 psi, 1/8" bottom	1
12	Regulator, Fluid 0-60 psi	1
13	Regulator, Air 0-125 psi	1
14	Tee, 1/4"M	1
15	Elbow, 1/4"M	1
16	Connector, 1/4"M x 1/8"M	1
17	Swivel, !/4"F	1
18	Handle with bolt	1
19	Nut	5
20	Crank arm	1
21	Bolt	1
22	Bolt	1
23	Cap	1
24	Sealing ring	1
25	Connecting ring	2

Pos.	Description	Qty.
26	O-ring	2
27	Centering guide	1
28	Sealing ring	1
29	Safety valve ass'y	1
30	Air inlet adapter	1
31	Air inlet baffle	1
35	Ball valve	2
36	Outlet tee	1
38	Agitator rod	1
39	Nut	1
40	Propeller	1
41	Swing bolt	4
42	Washer	4
43	Wing nut	4
44	Washer, 5/16"	4
45	Castor wheel	4
46	Cotter pin set	1
48	Fluid tube	1
49	Suction filter ass'y (incl.#50,51,52)	1
50	Filter support	1
51	Suction screen	1
52	Snap ring	1
53	Wrench	1
54	Decal, pressure pot settings	1
		2
		1

- Mount and secure Pressure Pot in a convenient and safe location within 20 feet of the metal detector. When installing a dual system mount pressure pot in a central location between the two metal detectors, whenever possible, for best performance

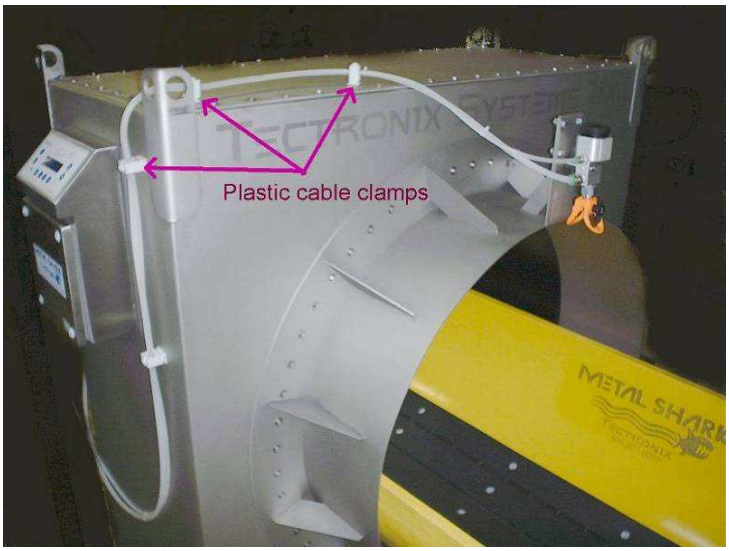
- Mount control box in a convenient and safe place within 6 feet of the metal detector



- Run 3/8" nylon hose from pressure pot to spray gun using plastic cable clamps provided. (see picture page 2-10)

- Run ¼" nylon air hose from pressure pot to marker system control cabinet.

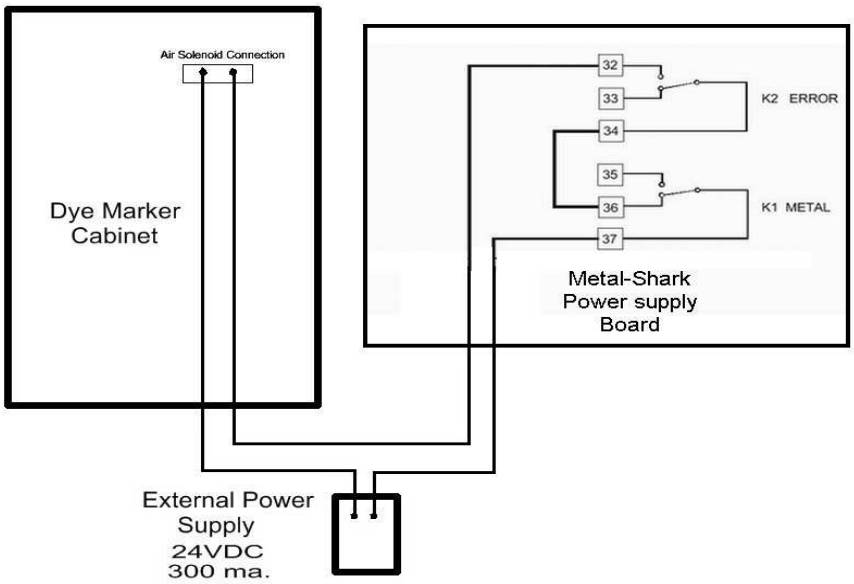
- Run ¼" nylon air hose from control box to Spray gun using plastic clamps provided. (see picture page 2-10)



- Cut and prepare air and dye/ink hoses correctly, straight cut (90deg) with no burrs.
- Connect air supply to pressure pot and adjust tank pressure for 1.4 bar (20psi)
- Set the air pressure for the control box to 2.7 bar (40psi)

2.3 24VDC control signal connection

- Connect the solenoid control signal through an external 24VDC/300ma supply to the METAL SHARK™ control box (see diagram below).



24Volt DC System

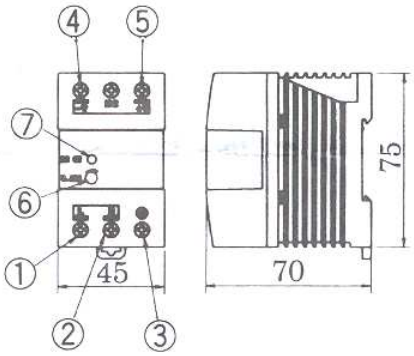
2.4 Optional 24VDC power supply

This Power supply is installed in the control box and is pre-wired so that only the 110VAC needs to be connected.

5. Terminal Marking and Description

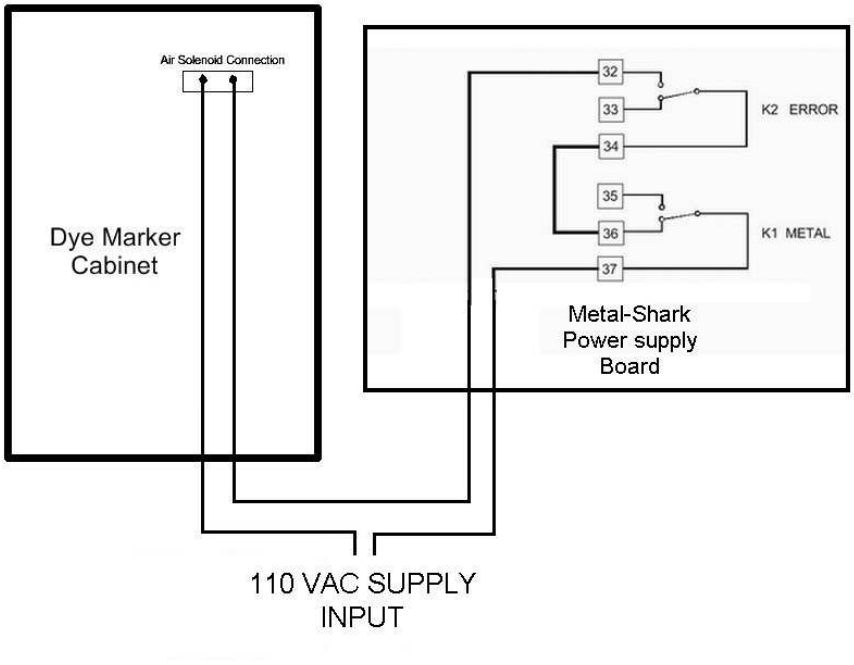
① (L) AC Input Terminal
② (N) AC Input Terminal
③ (⏚) Ground Terminal (Protective Earthing Terminal)
④ (−V) DC Output Terminal
⑤ (+V) DC Output Terminal
⑥ (V. ADJ) Output Voltage Adjustment
⑦ (DC ON) Operation Indicator

PS5R−A□



2.5 110VAC control line Connections

- Connect the solenoid control signal through an 110VAC supply to the METAL SHARK™ control box (see diagram below).



110VAC SYSTEM

- Complete METAL SHARK™ metal detector Setup and verify that it detects metal and does not false trip.
- Test the marking system **before** you load the dye/ink into the pressure pot by passing metal through the Metal Detector and listening for the *HISS* of air from the gun during metal detection

Important Never put any Body part in front of the Spray gun

- Close air supply at pressure pot and release pressure.
- Remove pressure pot top and pour in the marking dye.
- Close top, secure and turn on the air supply.
- Test the system again and verify that the dye/ink mark is on the test piece of metal. Adjust the time delay in the METAL SHARK™ controller if required to align the dye mark.

On METAL SHARK™ controller

Open menu → System menu → Reject menu

“delay” (delay for sprayer to come on after detection)

“duration” (length of spray mark on log)

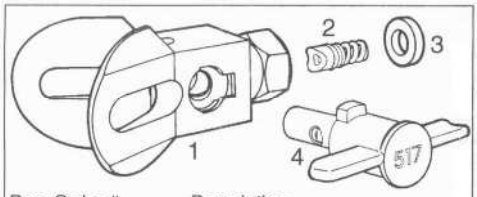
“contact” (should be set to pulse, if set on “hold”, gun will spray until the detector is reset)

3 Operation:

- Load pressure pot with marking dye.
- Adjust pressure pot pressure to 1.4 bars (20psi). Adjust operating control pressure to 2.7 bars (40psi)
- Turn the nozzle to the spray position
- A mark will be sprayed at the location of metal in the material when the METAL SHARK™ metal detector finds metal in the material passing through its aperture.(see 4-2 for fine spray pattern adjustments)

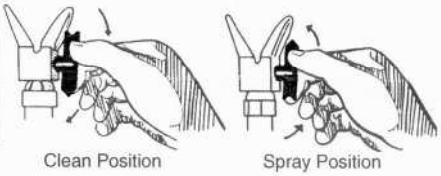
4 Service:

1. Periodically remove nozzle and clean with appropriate solvent (Frequency depends on how often the spray gun is actuated.)



Pos. Order #	Description
1) L043-001	Zip Tip housing (Lemmer)
L043-007	Zip Tip guard (not shown separately)
2) L043-005	Zip Tip seal kit (includes gasket #3)
3) L043-008	Nylon gasket
L043-009	Tube of 8x nylon gaskets
4) L043-154	Zip Tip

Warning: Stay clear of the nozzle. Severe injury can result from accidental skin penetration. Always engage trigger safety before replacing, reversing, or cleaning tip. Should fluid penetrate skin, get medical treatment at once. Do not treat as a simple cut. *NEVER* spray without tip guard in place.



Clean Position Spray Position

Features:

Fast Tip Size Changes - no tools required.
Long Seal Life - withstands harsh solvents - won't swell or leak - replaces in minutes.
Tip Rotates Easily - even under "high pressure" clog-up.
Venturi-Guard - less paint accumulation - helps protect against accidental injection and prevents tip from slipping out of position.
Patented Diffuser - safer unclogging in clean-out position.

To assemble unit:

1) Insert Zip Tip (4) into slot in housing (1) and turn counter clockwise 90 degrees to spray position. Tip "shaft" will form a stop for the seal.
2) Visually align curve of seal (2) to fit curve of tip shaft.
3) Keeping this exact alignment, insert seal into housing and push forward until seal seats firmly against shaft.
4) To check seal alignment; remove tip and visually inspect that curve of seal fits the curve of the housing exactly. Reinstall tip to spray position. Insert gasket (3) into nut and assemble onto gun.
5) Tighten nut securely. Install gun on hose and tighten securely.

To operate:

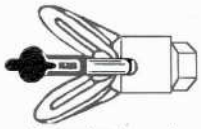
Warning: Do not spray without guard. Read and follow all warnings on all component parts of your airless system. Never trigger gun unless tip is in spray or clean-out position, or pump is in priming position.
***DO NOT* spray or empty the hose in "clean out" position, this will cause extreme wear and premature failure. Always remove the tip when cleaning out the hose.**

When tip plugs:
1) Rotate the tip 180° to the "Clean" position.
2) Trigger the gun and line pressure will purge clog.
3) Rotate the tip back to the "Spray" position and continue spraying.
4) If the clogging continues, clean or replace the gun filter (if so equipped), and/or strain the paint.

CAUTION: DO NOT USE A NEEDLE OR SHARP OBJECT TO CLEAN THE TIP. TUNGSTEN CARBIDE IS BRITTLE AND CAN BE CHIPPED.

To change zip tips:

1) Rotate zip-tip 90°.
2) Remove from housing.
3) Install new zip tip.
4) Rotate 90° to spray position.



Removing tip seal.

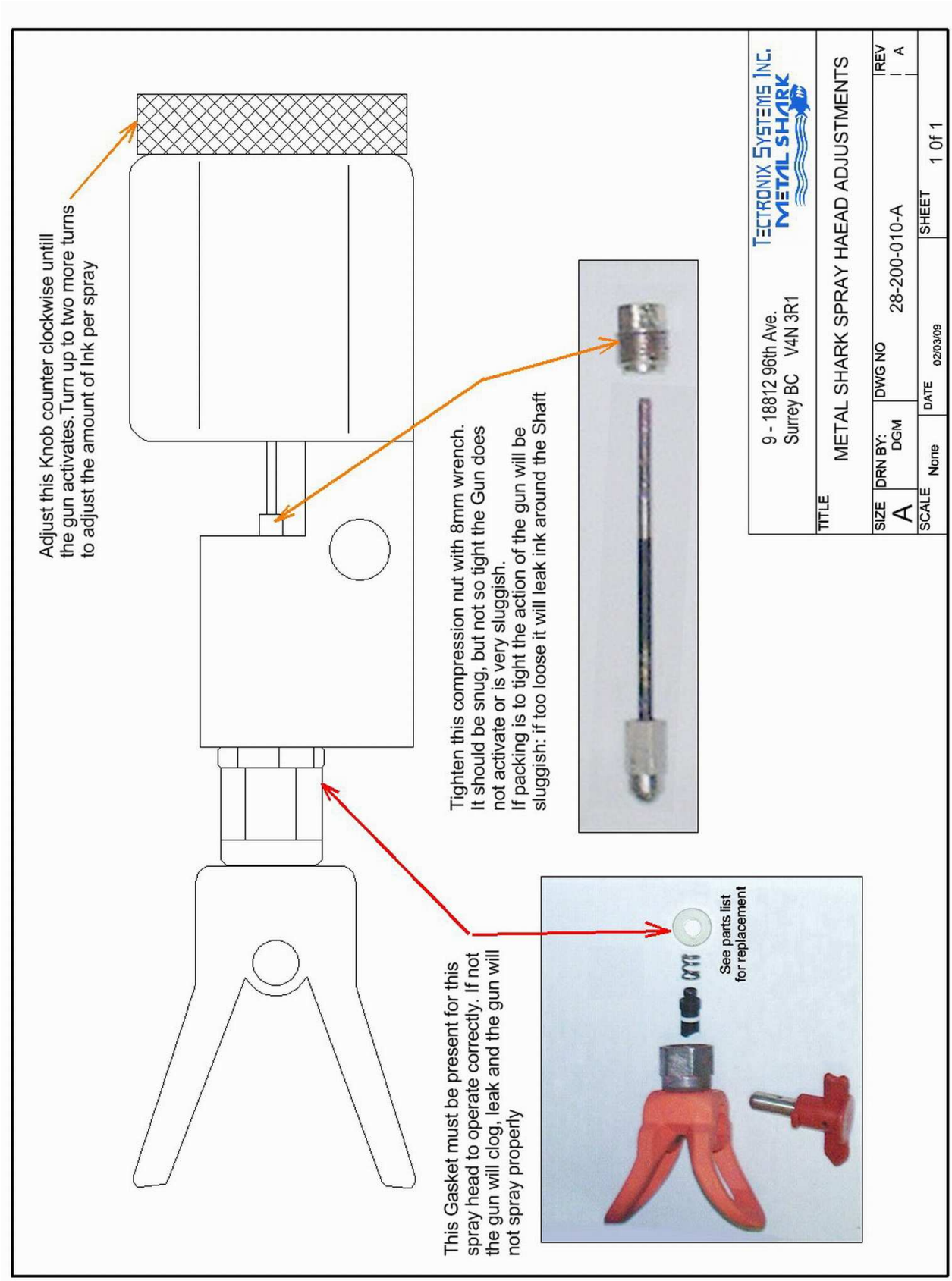
To change seal assembly:

IMPORTANT: The seal ass'y (2) is a wear part that must be replaced periodically. If leaking occurs, replace the seal ass'y *immediately* before it damages the tip shaft (4). Once tip shaft is eroded, the leak cannot be stopped with a new seal, both must be replaced.

1) Relieve line pressure and set gun safety.
2) Remove zip tip housing from gun.
3) Remove zip tip from housing.
4) Using the tip as a tool, insert zip tip shaft into front of housing and press seal assembly with gasket out of housing.
5) Clean all parts with proper solvent.
6) Inspect face of seal, o-ring on seal, and tip shaft for wear or erosion. Replace as neccessary.
7) Install zip tip (4) into housing.
8) Lubricate and insert seal ass'y (2) through gun nut to seat against the tip shaft (press firmly to insure seal is tight against tip shaft).
9) Insert gasket (3) over spring (in gun nut). Install unit on gun. Tighten gun nut.

2. Every six months remove air filter and check for dirt accumulation, clean as necessary, replace filter if required.
3. Replace filter when pressure to the gun begins to drop or gun starts to fire intermittently.
4. Check for air and dye leaks daily.
5. Test marker weekly as required to maintain reliability.

4.1 Spray head Adjustments:


Adjust this Knob counter clockwise untill the gun activates. Turn up to two more turns to adjust the amount of Ink per spray
Tighten this compression nut with 8mm wrench. It should be snug, but not so tight the Gun does not activate or is very sluggish. If packing is to tight the action of the gun will be sluggish: if too loose it will leak ink around the Shaft
This Gasket must be present for this spray head to operate correctly. If not the gun will clog, leak and the gun will not spray properly
See parts list for replacement
TECTRONIX SYSTEMS INC.
METAL SHARK
9 - 18812 96th Ave.
Surrey BC V4N 3R1
TITLE
METAL SHARK SPRAY HAEAD ADJUSTMENTS
SIZE A
DRN BY: DGM
DWG NO 28-200-010-A
REV A
SCALE None
DATE 02/03/09
SHEET 1 Of 1

4.2 Spray Pattern Adjustment:

- Set pressure pot pressure to 1.4 (20 lbs)
- Set trigger pressure to 2.7 bar,(40 lbs)
- Turn the Black knob at the back of the spray gun until the gun activates.(this adjustment can also produce vary small adjustment to the quantity of ink per spray)
- Adjusting the pot pressure will cause a spray pattern change. Lower pressure causes a smaller pattern, the higher the pressure a wider pattern. Never exceed 3.5 bar (50 lbs)
- The length of the spray is controlled by the duration of the spray signal from the controller.

5 Parts:

- Please call Tectronix Systems Inc for replacement parts as required.
- Never dismantle the spray gun or solenoid
- The Spray gun must be replaced as a complete unit (less nozzle and fittings). There are no serviceable parts in this unit.

Part Number	Description
L-A10	Spray gun
L043-005	Zip tip seal kit (includes gasket L043-008)
L043-009	tube of 8x nylon Gaskets (L043-008)
L043-154	Zip Tip Spray tip
L043-001	Spray tip housing
L011-075	Pressure Pot 2.25 gal
L011-082	Pressure Pot 5 gal
QRTN25NA-XX	¼" Nylon Air hose
QRTN38NA-XX	3/8" Nylon Dye/INK Hose
L12BA452B000061	Air Valve Solenoid
EKF22B-02A	Air Filter
DMM-A01	Marking system SS Mount (C/W hardware)
DMK-A01	Single Gun Cabinet C/W Solenoid and Filter
DMK-A02	Dual Gun Cabinet C/W Solenoid and Filter
1N105-308-022	3/8" FM Fitting
1N105-308-021	3/8" ML Fitting
1N105-104-021	¼" FM Fitting
1N105-104-020	¼" ML Fitting
1N105-104-000	¼" ML "t" Fitting
1N105-104-021	¼" Bulkhead Fitting
39272	Tank Heater band (1 for 2.25 gal, 2 for 5 gal)
MD-4L-2004	Marking Ink , Case (4 x 4l bottles)
L12BA452B000061	24VDC Solenoid
L12BA452O000030	110VAC Solenoid
PS5R-A24	110VAC to 24VDC, 7.5W Regulated Power Supply

6 Warranty Information:

IMPORTANT WARRANTY INFORMATION

Your marking system is warranted against manufactures defects in material and or workmanship provided that the equipment is installed and operated in accordance with the recommendations and instructions written in this operator's manual

- Spray head is warranted for a period of 1 years.
- Electrical solenoid and filter is warranted for 1 year

Tectronix will repair or replace, at its option, defective parts without charge. Shipping charges will be the responsibility of the owner

Marking Ink

The 'Marking Ink' supplied with your system has been specially formulated for use with the spray gun and has special lubrication, temperature and high flash point (drying) additives to ensure long gun life and trouble free operation.

Use of any marking ink, dye or paint other than what has been supplied may void your Warranty.

Replacement Marking Ink is available by the case of 4 bottles of 4 litres each (1US gallon each) from Tectronix Systems Inc. or your distributor. Use **p/n MD-4L-2004.**

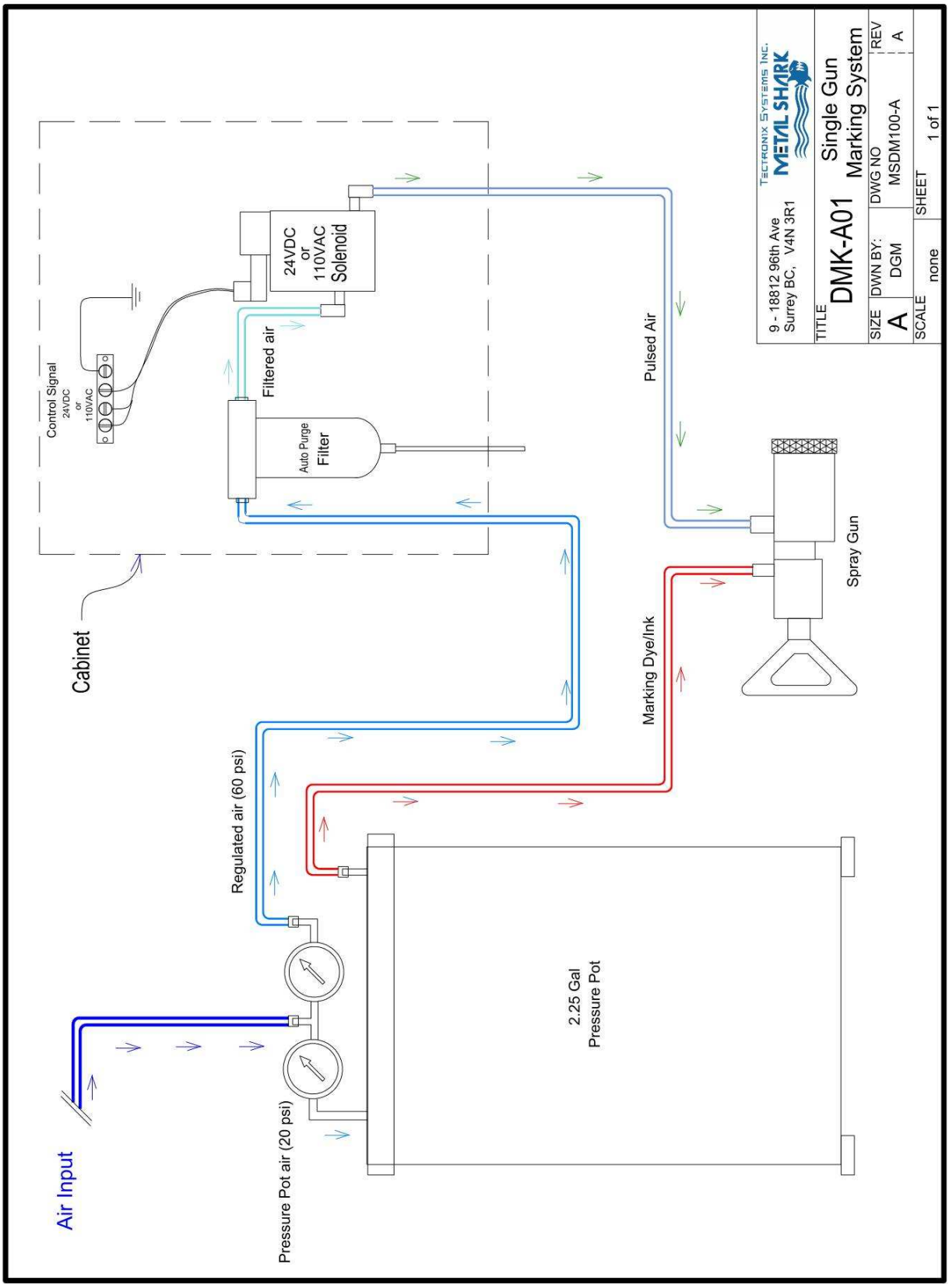
Should you have any questions, please contact our service department or sales department

Cold Weather

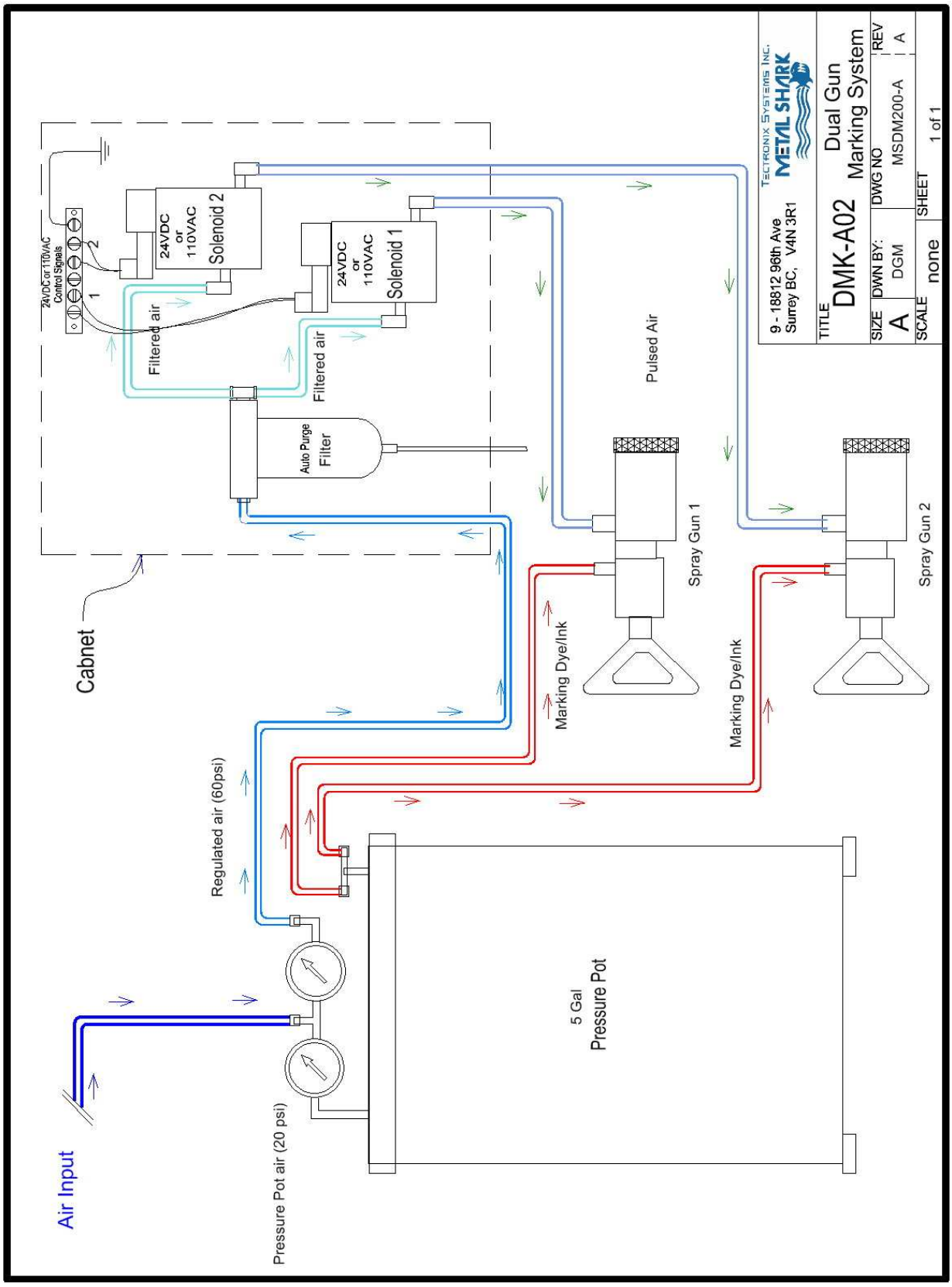
When the marking system is to be used in an installation where the temperature falls below 35°Fahrenheit/2°Celsius, heat tape must be installed around the dye/ink supply lines and spray gun. We recommend our special *Heat Belts* for the pressure pots (see parts list for ordering information). This will prevent the ink from gelling in cold weather and clogging the spray head nozzle

7 System Diagram:

7.1 : Single Gun Marking system

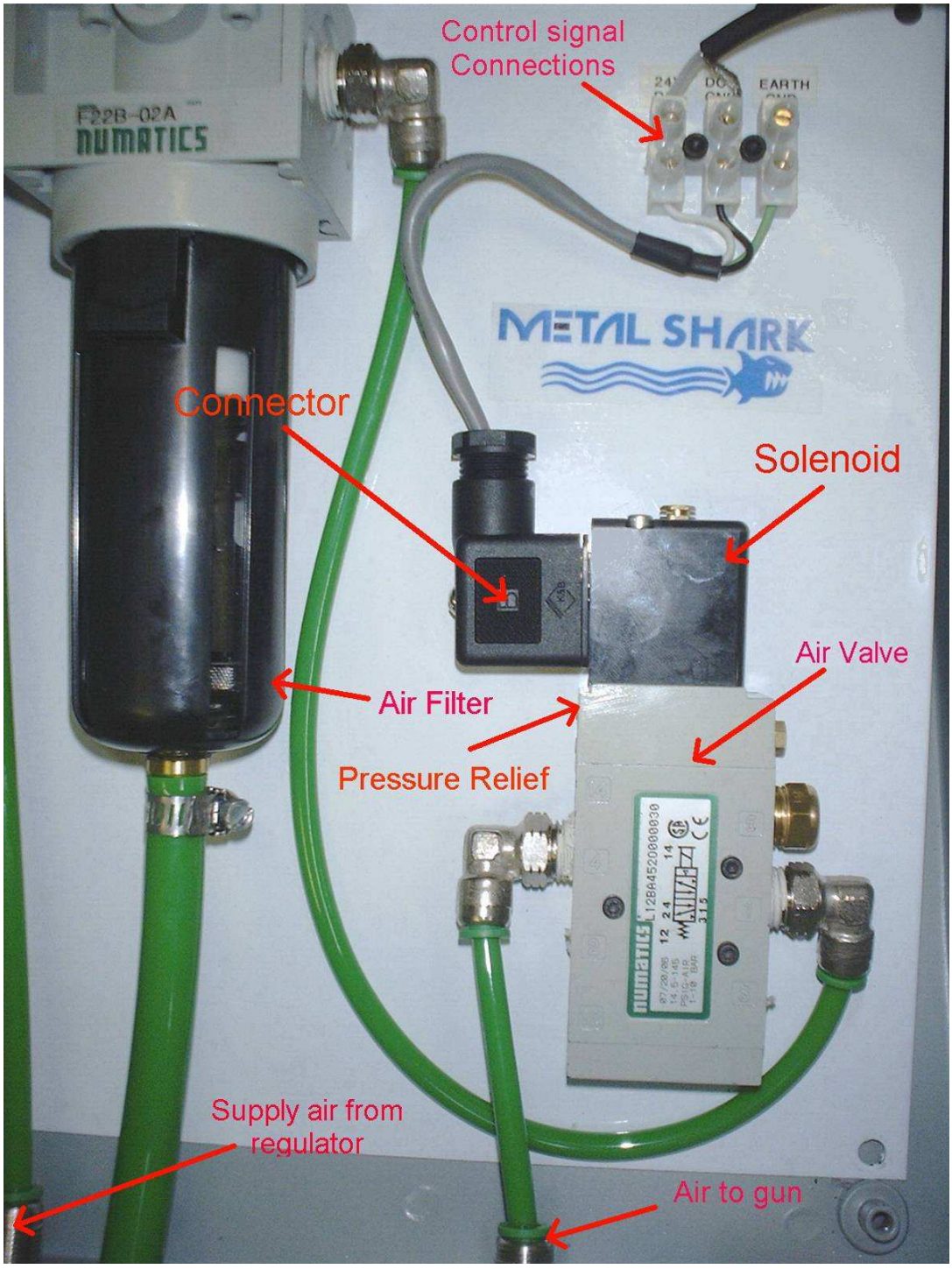


7.2 : Dual Gun Marking system



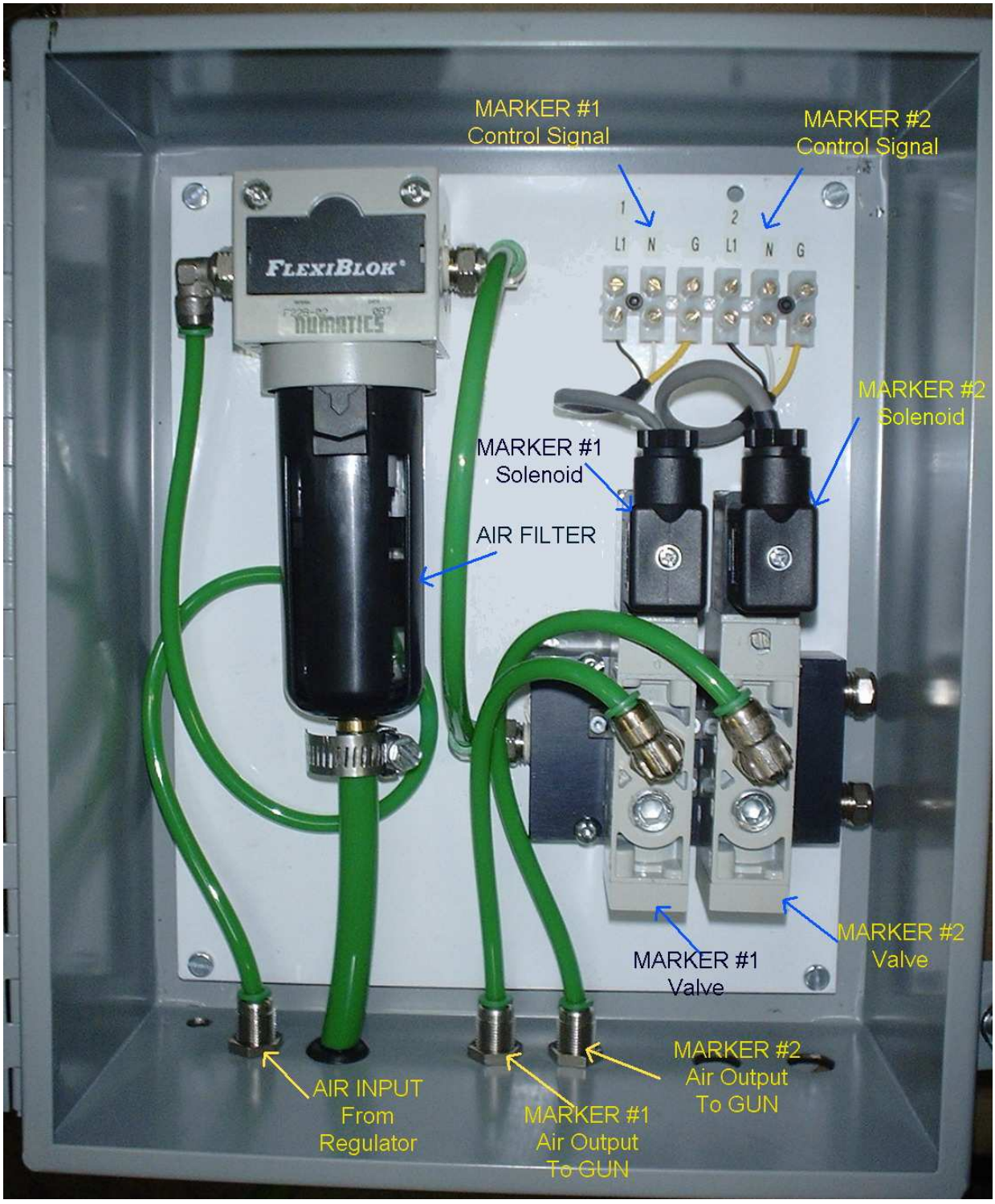
8 APPENDIX

8.1 : Single Gun Marking system 24VDC parts location



Single Gun – 24VDC
Marking system parts location

8.2 : Dual Gun Marking system 110VAC parts location



Dual Gun - 110VAC
Marking system parts location

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Internet: www.metal-shark.com

User manual: dye marker_june-06_english.doc

Status: June 2008